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SPECIAL REPORT
INTERNATIONAL OUTLOOK
Starts on Page 4

COAL INDUSTRY NEWS

Coal's National Newspaper

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NEWS ROUNDUP

Sen. Dale Bumpers, D-Ark., is asking Interior Secretary James Watt **to withhold leases in the Powder River federal coal sale** until possible Interior Department improprieties can be cleared up. Bumpers is asking for a Senate investigation of the matter. Allegations center around possible passage of information to coal industry representatives regarding the minimum acceptable bids for the 13 tracts.

* * *

Amerada-Hess Corp. might be interested in coal operations, Chairman Leon Hess told shareholders at the annual meeting, **"when the proper opportunity comes along."** Amerada-Hess is one of the few major oil companies that currently has no coal operations.

* * *

Great Plains Coal Gasification project **construction and costs appear on schedule and under budget,** reports Arthur Seder, chairman of American Natural Resources Inc., the lead company in the venture. He told the International Committee for Coal Research that the project, with costs estimated between $2.1 billion to $2.6 billion, **will be completed at the lower estimate,** a forecast Department of Energy sources confirm. DOE is backing the project with up to $2.1 billion in loan guarantees.

* * *

Zinder-Neris Inc. of Washington and New York has just released a 1982 first quarter update to its **country-by-**

(Continued on page 2)

INSIDE

PROBLEMS WITH COAL-OIL mixtures have caused the Electric Power Research Institute to look seriously at coal-water approaches. **Story on page 3.**

A BRITISH UNION LEADER appears on a collision course with the country's national electric utility over coal imports and job security. **British Report on page 8.**

THE ERODING INDUSTRIAL BASE in the United States has several leading coal researchers concerned. Steve Marcy explains why in his latest **Washington, FYI on the back page.**

Showcasing Coal at the 1982 World's Fair

YOUNG AND OLD ALIKE are invited to crawl through a re-created turn-of-the-century coal mine in "The Mining Life in West Virginia" exhibit at the 1982 World's Fair in Knoxville, Tenn. The crawl is designed to simulate the experience of working in an underground mine, as shown by mannequin at left. Although West Virginia's is the only World's Fair exhibit devoted solely to coal, others describe its uses and potential, notes Sharon Denny in her report on page 2.

UMW Still Mulls 'Memorial Action' To Protest Rule

By Steve Marcy

WASHINGTON — The United Mine Workers union was still mulling over the possibility late last week of calling a "memorial action" to protest what it contends are minimum fines for safety violations set so low that operators will merely pay them rather than correct hazards.

The UMW has in its contract with the Bituminous Coal Operators Association the right to call up to 10 memorial days each calendar year to honor the workers killed in the nation's mines.

Union sources told *Coal Industry News* that President Sam Church Jr. might use two of these days to bring as many of his 160,000 miners as he can to Washington for a march if the Mine Safety and Health Administration goes ahead with its planned $20 minimum fine. However, one source said he was not looking for a memorial action "anytime in the near future." The source said any decision would probably await publication of the new rule.

In what was billed as an emergency meeting, Church was empowered by the UMW's bargaining council and its International Executive Board to call the action if MSHA's publication of the new fine structure May 21 had not included UMW-sought changes.

"Talks Continuing"

UMW sources said that "talks were continuing" last week, but added that no for-

(Continued on page 2)

Study Sees Coal as Key Pacific Islands Fuel Source

By Gene Smith

NEW YORK — Coal will become a potential fuel source for the Pacific Islands in the 1990s because of expected increases of exports to Pacific Rim nations.

That's the major conclusion of a recent Lawrence Livermore National Laboratory study entitled "Coal as an Option for Power Generation in U.S. Territories of the Pacific." The author, I.Y. Borg, feels it is "clear that world coal traffic of steam coal will at least triple by 1990; Far East imports, principally to Japan, Taiwan and Korea, may increase by a factor of 10 times in the same time frame."

While conceding that the trend to the very large dry-bulk carriers will pose problems for most Pacific Island harbors, Borg concludes:

"Any carrier would have to be of the Panamax size or smaller — comprising 83 percent of the world's dry-bulk carriers — to unload coal dockside at most territory and trust territory facilities. Alternative sea deliveries can be imagined. For example, seagoing barges with self-loading/unloading capabilities could be used as lighters for large vessels moored offshore."

Power-Generation

Borg also sees high-pressure boilers using pulverized bituminous coal as an option for electric power generation in the region. Conversion to such systems average $1,000 to $1,500 per installed kilowatt in this country and would probably be higher for Pacific Island installations.

Borg also sees the possibility of the fluidized bed boiler (FBR) or turnkey power plants available from a number of engineering firms.

Provisions of the Clean Air Act and its revisions would apply to Guam, American Samoa and the Commonwealth of Northern Marianas Islands (CNMI) with respect to power plant construction, according to the study, although CNMI status is somewhat in doubt. However, compliance with the Jones

Editor's Report

Act which requires transport between U.S. ports be in vessels registered, crewed and owned by the U.S. does apply to Guam and American Samoa, but remains in doubt as to CNMI and does not apply to U.S. Trust Territories of the Pacific Islands.

Borg contends that only Guam and American Samoa had shown interest in the possible use of coal for power generation in the past, but that with expected increases in international steam coal trade, coupled with the higher price of oil, it has now become propitious to re-examine the potential of coal.

"Only Guam's demand is in the 100 to 200-megawatt range," Borg explains. "All other territories have requirements on the order of one to 25 megawatts. Thus, the coal-fired boilers and turbines used as replacements for existing systems would be small. Depending on the system chosen, the annual requirements for a 25-megawatt unit are in the 105,000 to 122,000-ton range. These requirements correspond to two or three large dry-bulk carrier deliveries a year, assuming storage space is available.

"In places like American Samoa, the large, indigenous fish industry could conceivably utilize waste heat from power production for canning processes. The cogeneration option might be pursued if a plant site convenient to the fisheries on Pago Pago Bay could be found. There are few new plant sites on the shores of the already crowded bay," said Borg.

Returning to the possible use of fluidized bed boilers, the study describes this technology as "promising," particularly because of its ability to burn low-grade coals, coal-oil mixtures, wood, biomass and heavy oils. There are also advantages associated with environmental and pollution controls.

Additionally, limestone from reefs is quarried on the islands and is vital for the FBR.

(Continued on page 8)

IEA Report Sees a Greater Industrial Potential for Coal Than Earlier Reported

By Michael Parrott

PARIS — Industry has so far shown little interest in coal. The availability of cheap oil during the 1960s has resulted in most companies being committed to oil-based systems. Within Western industrialized countries twice as much oil is now being used by industry as by utilities — 9 million barrels per day compared to 4.6 million.

But a report just published by the Paris-based International Energy Agency believes industries could consume much more coal than is generally believed. It argues that western industries could triple their consumption in the next 20 years to a billion metric tons per year from the current 343 million.

But, argues the IEA, this will only be possible if international organizations and governments step in. "The major problem is the quick payback which industrialists look for in major capital investment as opposed to the longer term benefits to be derived," claims the report, "The Use of Coal in Industry" prepared by the IEA's Coal Industry Advisory Board (CIAB).

As the report shows, coal is economically attractive compared to oil. Steam coal delivered to European industry is, for example, generally cheaper than imported oil, even when higher transport and treatment costs are included. But the difficulty is to get industry to replace its existing stock of oil and gas-fired boilers with coal-fired ones.

Two-Year Payback

At the moment Western industrialists are only prepared to invest in coal-fired boilers if they can get a payback within two years. On this basis the report claims the coal consumption by boilers may only reach 314 million tons of coal equivalent in the year 2000 from 80 million in 1978-79. But if international organizations or governments would step in and extend the payback period to five years, the potential coal use by boilers would nearly double to 609 million tons.

The new report is more optimistic about possible industrial coal use than earlier studies. When basing its estimates by sector, the IEA comes out with a consumption range of between 285 million and 400 million tons of coal equivalent in the year 2000 for steam coal and some 320 million for metallurgical coal, while on the basis of coal use it foresees between 776 million and 1.1 billion tons depending on boiler consumption which could be anything from 310 to 600 million tons.

Under the IEA's 1978 report "Steam Coal: Prospects to 2000", steam coal consumption was only put at 290 millions and that of metallurgical coal at 378 millions. Under the lower WOCOL study steam coal was put at 227 millions and mettalurical coal at 334, under the higher case 393 and 371 millions.

The new study is less optimistic about the prospects for metallurgical coal, but is much more confident about the future of steam coal provided help is provided by governments. On the basis of fuel economics to IEA reckons the possibilities for steam coal are even higher — 500 and 700 millions in 1990 and 2000.

The authors of the report have no illusions about the cost of such a shift to coal. In boilers alone investments without government inducements would amount to $13 billion by 1990. In the case of government incentives to extand

(Continued on page 5)

European Report

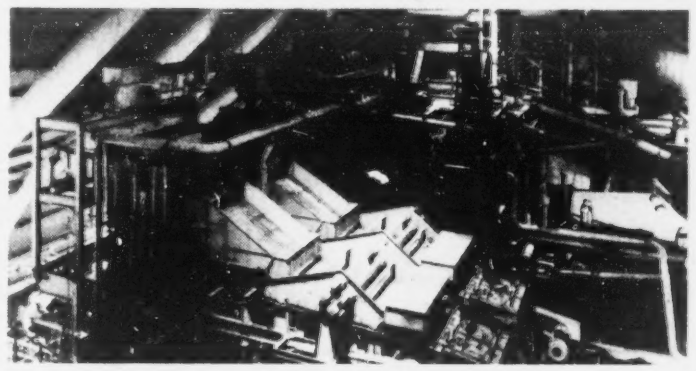
HOW THE IEA PROJECTS COAL DEMAND DISTRIBUTION BY U.S. INDUSTRY

(Million Metric Tons Per Year)

Industry	1974			1985			1990			Total
	Boilers	Process Heaters	Total	Boilers	Process Heaters	Total	Boilers	Process Heaters	Gasifiers	
Food	3.4	—	3.4	6.6	—	6.6	11.3	—	—	11.3
Textiles	1.0	—	1.0	2.1	—	2.1	2.9	—	—	2.9
Paper	9.5	—	9.5	14.6	—	14.1	22.6	—	—	22.6
Chemicals	14.6	—	14.6	23.1	—	23.1	36.1	—	1.0	7.1
Petroleum Refining	0.2	—	0.2	3.1	—	3.1	6.4	—	0.4	6.8
Stone, Clay, and Glass	0.1	11.2	11.3	0.2	19.4	19.6	0.2	21.2	0.2	21.6
Steel	7.1	—	7.1	9.9	0.8	10.7	16.1	2.2	0.5	18.8
Aluminium	1.4	—	1.4	3.1	0.5	3.6	8.6	1.3	0.1	10.0
Other	11.3	0.3	11.6	14.4	1.9	16.3	21.7	2.0	0.1	23.8
TOTAL*	48.6	11.5	60.1	77.0	22.5	100.0	126.0	26.7	2.3	155.0

* Numbers may not add to total due to rounding.

Source: International Energy Agency.



WEST GERMANY'S FIRST new underground mine in 17 years, Neu-Monopol has a designed capacity of 9,000 tons per day and is integrated with an electric power plant. It features a coal-handling system, above, designed and built by KHD Humboldt Wedag AG to process both forge and gas coal.

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Technological advances in underground mining: The new coal contract...Underground productivity...Longwall mining...Role of the independent mine...New equipment and thin seams mining...Mergers: The effects on Western underground mining.

June 28-WESTERN MINING
Special Distribution: Rocky Mountain Coal Mining Institute, June 27-30, Vail.
The Western situation: Exports...Rail competition...Ramifications of the Staggers Act on Western coal shippers...New mines...Synfuels and gasification projects...Joint ventures with Japan and Taiwan.

July 12-CRUSHERS, BREAKERS, SCREENS
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Activity in the Ruhr District Picks Up, Obstacles Remain

By John M. Bradley

BONN — The coal mining firm Bergbau AG Westfalen, a member of the Ruhrkohle group, has opened amid great fanfare a new mine at Bergkamen in the north-eastern corner of West Germany's Ruhr District.

What especially marked the occasion was that the Bergkamen mine is the first new mine to be opened in the country since 1965, marking the reversal in the fortunes of the coal industry from declining to increasing demand.

The decline has persisted for 24 years, with production dropping from 124 million tons in 1956 to 85.9 million tons in 1979. There was a slight increase in output in 1980 to 86 million tons, to which the Ruhr District contributed about 80 percent. Demand is up again so far this year, and the industry anticipates increasing production to 100 million tons by the end of the century.

A new mine, named Neue Monopol, was developed on the site of an older one which was opened in 1894. With demand declining and the old mine's resources at the 2,500-foot level approaching depletion, the owners decided in 1972 to start phasing it out for a final close-down in 1976. But in 1973, two electric power companies, STEAG and VEW, decided to build a 750-kilowatt coal-fired plant a few miles from the old mine, provided they could be assured a supply of coal.

With a guaranteed customer, Bergbau AG Westfalen reversed its earlier decision and started drawing up plans for the development of a new mine on the site of the old. They began with enlarging and improving the old shaft and sinking it to a depth of 4,500 feet, where there are sufficient deposits to support an output of 9,000 tons a day for the next 40 years.

German Report

Actual work began in 1975. Following the enlarging and deepening, driving of underground galleries got under way, with a total length of nine miles to date. On the surface, a 235-foot hoisting tower, the highest in Germany, was built. Also setting a record for size is the coal preparation building at 700 feet long, 206 feet wide and 103 feet high.

From the preparation building coal will be carried 1.6 miles to the power plant via a conveyor belt with a capacity of 1,000 tons per hour. The power plant incorpo-

(Continued on page 5)

Germany's 1st New Mine Since '65 Signals Change in Coal's Fortune

(Continued from page 4)

rates some of the most advanced technology in power plant design, including filters and scrubbers to minimize air pollution. The smokestack stands at just over 900 feet in height.

With the early decision to close down the old Monopol mine, the Bergkamen community was, understandably, disturbed at the prospect of the elimination of 1,500 jobs. The mood has completely reversed. When in full operation later this year the mine will employ 4,000 miners and technicians above and below ground.

Total investment in the new mine came to about $450 million, far less than would be required to develop a comparable mine at a previously untouched site.

While the Neue rates as a new mine, since its predecessor had already been written off and it is to extract coal from strata the old mine had no prospect of reaching, six additional mines in the northern part of the Ruhr are being substantially deepened and expanded. In several of them the main shaft is being deepened by several hundred feet while other, separate, mines are being connected by underground galleries. Working at depths below 3,200 feet and eventually to around 5,000 will ultimately become characteristic of coal mining in the Ruhr District.

First Mines at Surface

Coal mining there got its start in the Ruhr Valley where deposits were relatively close to the surface making it economically possible to operate mines with an output of less than 100,000 tons a year. This led to a vast proliferation of mines. As late as 1920 there were 202 active mines in the District, compared to 31 today.

Production in the Ruhr reached its peak of 124 million tons in 1956 from 140 mines. From that point, until 1980, both production and the number of mines being worked dropped steadily. At the same time, the depth of mines increased. In 1892, 80 percent of all coal recovered was taken from less than 1,500 feet deep. By 1940 only 27 percent of all coal came from such shallow mines. And by 1966 their contribution came to only 4 percent. Today the average depth of all Ruhr District mines is 2,700 feet.

The structure of the North German coal fields, where deposits pitch downwards at about 6 degrees toward the North Sea, forces miners to go continually deeper. A new mine now being developed in the Hardt Forest in the northernmost part of the Ruhr District will start at the 3,300-foot level and as the mining progresses the coal faces will deepen steadily.

Coal reserves are abundant in the area — an estimated 500 million tons alone in the 15-square-mile Hardt Forest area alone — but getting it out will become ever more expensive and time-consuming. The estimated time required to develop a new mine, penetrating to a depth of between 3,500 and 4,500 feet, is around 10 years.

These are the conditions which will restrict the industry to no more than 100 million tons produced by the year 2000 (including the Ruhr and three less important areas) and why the price of a ton of West German coal runs to $100 and more.

Coal in Industry Potential Outlined

(Continued from page 4)

payback periods, the total investment would reach $100 billion. In the first case industry would make an annual fuel saving of $11 billion, in the second one of $43 billion. It is reckoned that government intervention could make an additional 3.5 million barrels of oil a day economically substitutable by coal in boilers in 1990.

According to the report, the main opportunity for coal taking over from oil is in the energy-intensive industries that required bulk heat or a combination of heat and power. Coal use is particularly favoured in the cement industry, where ash and sulfur become part of the product and at certain paper mills where the configuration of wood-burning boilers is suitable for coal. In addition, very large opportunities for bulk steam-raising exist in the aluminium, textile, chemical, food and engineering industries.

But coal may also be used in industry in the form of electricity or gas. Electricity may be brought in from a utility or may be generated on site. Where natural gas is in limited supply or highly priced, coal can be converted to SNG by a utility or to medium/low calorie gas on-site.

The biggest single outlet for coal in industry is, of course, iron and steel.

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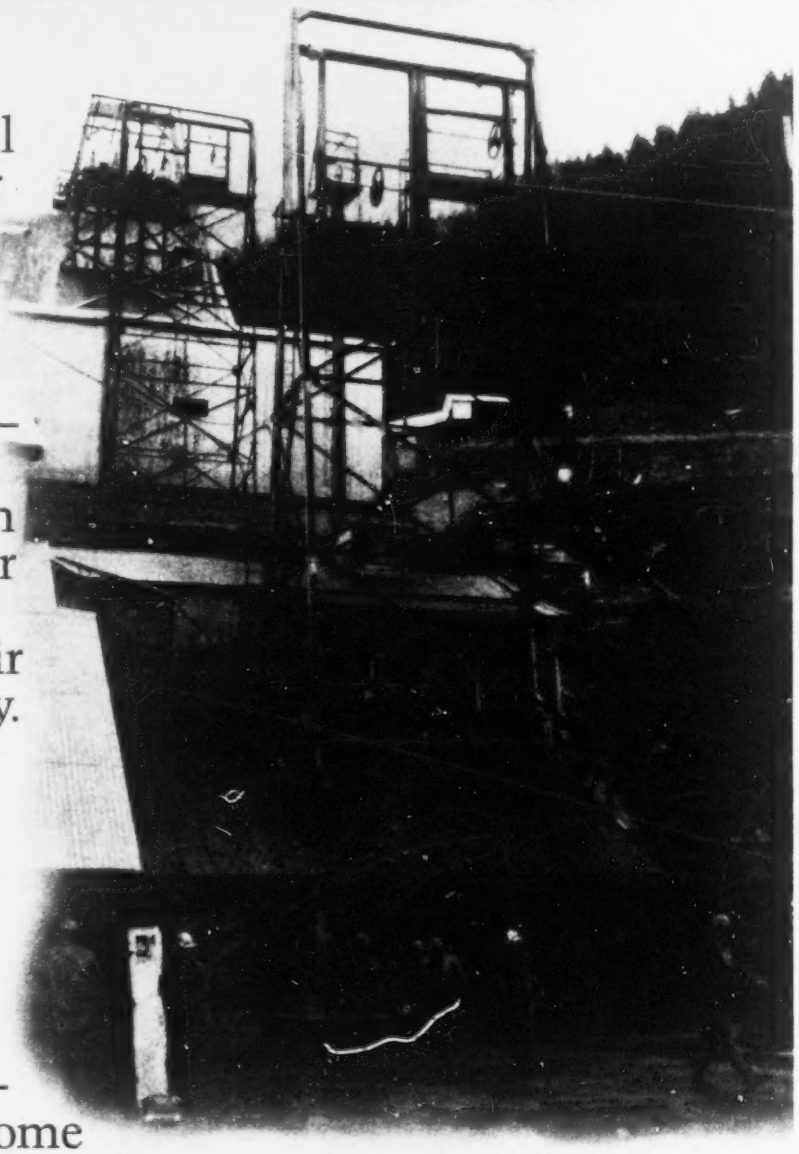

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